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FORM PTO-1390 (Modified) (REV 11-98) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371

ATTORNEY'S DOCKET NUMBER: XA-9467

U.S APPLICATION NO. (IF KNOWN, SEE 37 CFR): 09/830689

INTERNATIONAL APPLICATION NO.	INTERNATIONAL FILING DATE	PRIORITY DATE CLAIMED
PCT/FR99/02655	29 October 1999	30 October 1998

TITLE OF INVENTION

ECONOMIC PROCESS FOR EFFECTING COMMUNICATION BETWEEN TWO COMMUNICATION TERMINALS ACROSS THE INTERNET AND ASSOCIATED COMMUNICATION TERMINAL

APPLICANT(S) FOR DO/EO/US

MENU Michel

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☐ This is an express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☒ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
   a. ☒ is transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☒ has been transmitted by the International Bureau.
   c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☒ A copy of the International Search Report (PCT/ISA/210).
8. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
   a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
   b. ☐ have been transmitted by the International Bureau.
   c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
   d. ☒ have not been made and will not be made.
9. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
10. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)).
11. ☒ A copy of the International Preliminary Examination Report (PCT/IPEA/409).
12. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).

Items 13 to 20 below concern document(s) or information included:

13. ☒ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☒ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☒ A **FIRST** preliminary amendment.
16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
17. ☐ A substitute specification.
18. ☒ A change of power of attorney and/or address letter.
19. ☐ Certificate of Mailing by Express Mail
20. ☒ Other items or information:

Copy of Form PCT/IB/308

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR	INTERNATIONAL APPLICATION NO.	ATTORNEY'S DOCKET NUMBER
09/830689	PCT/FR99/02655	XA-9467

21. The following fees are submitted:.

BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :		CALCULATIONS PTO USE ONLY
☐ Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2) paid to USPTO and International Search Report not prepared by the EPO or JPO	$1,000.00	
☒ International preliminary examination fee (37 CFR 1.482) not paid to USPTO but Internation Search Report prepared by the EPO or JPO	$860.00	
☐ International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO	$710.00	
☐ International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provisions of PCT Article 33(1)-(4)	$690.00	
☐ International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(1)-(4)	$100.00	
ENTER APPROPRIATE BASIC FEE AMOUNT =		$860.00
Surcharge of **$130.00** for furnishing the oath or declaration later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (e)).		$0.00

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	
Total claims	8 - 20 =	0	x $18.00	$0.00
Independent claims	2 - 3 =	0	x $80.00	$0.00
Multiple Dependent Claims **(check if applicable)**.			☐	$0.00
TOTAL OF ABOVE CALCULATIONS			=	$860.00
Reduction of 1/2 for filing by small entity, if applicable. Verified Small Entity Statement must also be filed (Note 37 CFR 1.9, 1.27, 1.28) **(check if applicable)**.			☐	$0.00
SUBTOTAL			=	$860.00
Processing fee of **$130.00** for furnishing the English translation later than ☐ 20 ☐ 30 months from the earliest claimed priority date (37 CFR 1.492 (f)).			+	$0.00
TOTAL NATIONAL FEE			=	$860.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) **(check if applicable).**			☒	$40.00
TOTAL FEES ENCLOSED			=	$900.00
			Amount to be: refunded	$
			charged	$

☒ A check in the amount of **$900.00** to cover the above fees is enclosed.

☐ Please charge my Deposit Account No. in the amount of to cover the above fees.
A duplicate copy of this sheet is enclosed.

☒ The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. **50-1165** A duplicate copy of this sheet is enclosed.

NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO:

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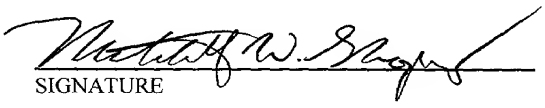

SIGNATURE

Mitchell W. Shapiro
NAME

31,568
REGISTRATION NUMBER

April 30, 2001
DATE

XA-9467

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

MENU Michel

Intl. Appln. No.: PCT/FR99/02655

Intl. Filing Date: 29 October 1999

For: ECONOMIC PROCESS FOR EFFECTING COMMUNICATION BETWEEN TWO COMMUNICATION TERINALS ACROSS THE INTERNET AND ASSOCIATED COMMUNICATION TERMINAL

* * *

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination, please amend the above-identified patent application as indicated below.

IN THE CLAIMS:

5. (Amended) The process as claimed in claim 3, in which the first terminal (T_1) connects up to the computer network (100) by way of an access provider (IAP_1) to which it addresses a request (45) so as to obtain the same computer address for two successive connections.

6. (Amended) The process as claimed in claim 3, in which the first terminal (T_1) connects up to the

computer network (100) by way of an access provider (IAP_1) which allocates it the same computer address for a plurality of successive connections in so far as they occur within a predetermined time span.

7. (Amended) The process as claimed in claim 1, in which the first terminal (T_1) calls the second terminal (T_2) across the telephone network (101) so as to ask it if it wishes to communicate with it across the computer network (100).

8. (Amended) The process as claimed in claim 1, in which, after effecting communication between the two terminals (T_1, T_2) across the computer network (100), the terminals (T_1, T_2) each activate a signal so as to advise their users that communication has been effected between the two terminals (T_1, T_2).

REMARKS

Claims 5-8 have been amended to avoid the surcharge for multiple dependent claims. A hand-marked version showing the amendments is attached.

The Commissioner is hereby authorized to charge to Deposit Account No. 50-1165 any fee that may be required by this paper and to credit any overpayment to that Account. If any extension of time is required in

connection with the filing of this paper and has not been requested separately, such extension is hereby requested.

Respectfully submitted,

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April 30, 2001

Marked Up Version Claims 5-8

address which it transmits to the second terminal (T_2) across the telephone network (101), and

- the second terminal (T_2) connects up (50) to the computer network (100) and obtains a computer address which it transmits to the first terminal (T_1) across the computer network (100),

process characterized in that, after having obtained (45) its computer address, the first terminal (T_1) disconnects (46) from the computer network (100), so as to transmit (48) its computer address to the second terminal (T_2) across the telephone network (101), then reconnects (49) to the computer network (100) and obtains the same computer address as at the previous connection (45).

4. The process as claimed in claim 3, in which, after having disconnected from the computer network (100), the first terminal (T_1) calls the second terminal (T_2) across the telephone network (101) so as to transmit its computer address to it.

5. The process as claimed in [any one of claims 3 and 4] claim 3 in which the first terminal (T_1) connects up to the computer network (100) by way of an access provider (IAP_1) to which it addresses a request (45) so as to obtain the same computer address for two successive connections.

6. The process as claimed in [any one of claims 3 to 5] claim 3, in which the first terminal (T_1) connects up to the computer network (100) by way of an access provider (IAP_1) which allocates it the same computer address for a plurality of successive connections in so far as they occur within a predetermined time span.

7. The process as claimed in [any one of claims 1 to 6] claim 1, in which the first terminal (T_1) calls the second terminal (T_2) across the telephone network (101) so as to ask it if it wishes to communicate with it across the computer network (100).

8. The process as claimed in [any one of claims 1 to 7] claim 1, in which, after effecting communication between the two terminals (T_1, T_2) across the computer network (100),

the terminals (T_1, T_2) each activate a signal so as to advise their users that communication has been effected between the two terminals (T_1, T_2).

ECONOMIC PROCESS FOR EFFECTING COMMUNICATION BETWEEN TWO COMMUNICATION TERMINALS ACROSS THE INTERNET AND ASSOCIATED COMMUNICATION TERMINAL

A computer network such as the Internet allows conversing parties equipped with a communication terminal to communicate with one another in real time.

To connect up to the Internet, a terminal must be furnished with access to the Internet provided by an access provider. This may be telephone access, for example via the STN network (Switched Telephone Network) or else access via a local network LAN, such as a local company network, having its own Internet access provider. Under all circumstances, the cost of a long distance communication is much more advantageous across the Internet than across an ordinary telephone network. In the case of telephone access, one pays only for the cost of the telephone communication with the access provider, which generally takes place locally, and, in the case of access via a local network, the communication across the Internet is itself free of charge. In short, the cost advantages of the Internet are extremely significant.

However, the Internet has certain drawbacks.

One of these drawbacks is related to the Internet's communication protocols. The Internet is a packet-switching network which uses packet-based communication protocols such as the TCP (Transfer Control Protocol), UDP (User Datagram Protocol), IP (Internet Protocol) and RTP (Real Time Protocol) protocols. Stated otherwise, the data to be transmitted are split up by the sender into data packets, transmitted across the Internet to the recipient and reassembled by the latter. Each packet contains a destination address, referred to as the "IP address" (Internet Protocol) of the recipient, enabling the Internet to convey the packet to the recipient.

Generally, a communication terminal, not linked permanently to the Internet, is furnished with a

dynamic IP address, stated otherwise an address which is not fixed, on the Internet. A terminal's IP address, allocated by its access provider, is valid only temporarily. Usually, it changes with each new connection of the terminal to the Internet.

In order for two terminals to communicate with one another, in real time, across the Internet, each terminal must know the IP address of the other terminal, something which proves to be difficult in so far as these IP addresses are temporary and hence nonregular.

A known solution for enabling conversing parties to talk via the Internet consists in going via a server for effecting communication, for example an IRC (Internet Relay Chat) server. However, this solution proves to be constraining.

FR 2 753 862 also discloses a process for effecting communication, across the Internet, between a first and a second telephone apparatus, both linked to a digital line of a telephone network. The first apparatus connects up to the Internet, by telephone connection to an Internet access provider, obtains an IP address and, whilst remaining connected to the Internet, transmits its IP address to the second apparatus, across the telephone network, using a second channel B of the digital line.

The implementation of the process of FR 2 753 862 presupposes that the first apparatus, the calling apparatus, is linked to a digital telephone line, comprising two data transmission channels B. In fact, the calling apparatus uses one of the channels B to connect up to the Internet and the other channel B to transmit its IP address to the second apparatus, the called apparatus. This solution is therefore appropriate only for users of a digital line, of the ISDN type (Integrated Services Digital Network).

The present invention proposes a solution which is also appropriate for communication terminals linked

to an ordinary telephone line, a nondigital line, of the STN type (Switched Telephone Network).

For this purpose, the invention relates to a process for effecting communication between at least two communication terminals across a computer network, in which, the two terminals being linked to a telephone network,

- the first of the two terminals connects up to the computer network and obtains a computer address which it transmits to the second terminal across the telephone network, and
- the second terminal connects up to the computer network and obtains a computer address which it transmits to the first terminal across the computer network,

process characterized in that

- before connecting up to the computer network, the first terminal calls the second terminal across the telephone network and invites it to call it back later,
- as agreed, the second terminal calls the first terminal later and the latter then transmits its computer address to it, across the telephone network.

Advantageously, after having obtained its computer address, the first terminal remains connected to the computer network, it is advised of the call of the second terminal across the telephone network by a call signal and then switches temporarily over to the second terminal so as to transmit its computer address to it across the telephone network.

Thus, if the first terminal is furnished with a dual-call signal service, it can use this service to transmit its computer address to the second terminal, whilst remaining connected to the computer network.

The invention also relates to a process for effecting communication between at least two communication terminals across a computer network, in which, the two terminals being linked to a telephone network,

- the first of the two terminals connects up to the computer network and obtains a computer address which it transmits to the second terminal across the telephone network, and
- the second terminal connects up to the computer network and obtains a computer address which it transmits to the first terminal across the computer network,

process characterized in that, after having obtained its computer address, the first terminal disconnects from the computer network, so as to transmit its computer address to the second terminal across the telephone network, then reconnects to the computer network and obtains the same computer address as at the previous connection.

Advantageously, after having disconnected from the computer network, the first terminal calls the second terminal across the telephone network so as to transmit its computer address to it.

It will be stressed that, in the two processes of the invention, the first terminal transmits its computer address to the second terminal, via an ordinary telephone communication between the two terminals, the establishing of this communication being performed either by telephone switching, or between a disconnection and a reconnection of the first terminal to the computer network.

The invention will be better understood with the aid of the following description of various embodiments of the process for effecting communication between two terminals across a computer network of the invention, with reference to the appended drawing in which:

Figure 1 represents a diagram of the two terminals and of the Internet;

Figure 2 represents a functional block diagram of one of the communication terminals;

Figure 3 represents a diagram of the various steps of the process for effecting communication, according to a first embodiment;

Figure 4 represents a diagram of the various steps of the process, according to a second embodiment.

The process of the invention makes it possible to effect communication between two terminals T_1 and T_2, across a packet-switching computer network, in this instance the Internet 100.

Each terminal T_1, T_2 is linked to a telephone network, in this instance the switched telephone network STN 101, on which it has a telephone call number, and is furnished with access to the Internet 100 provided by an Internet access provider IAP_1, IAP_2.

The two terminals T_1, T_2 being identical, only one will now be described.

The terminal T_1 comprises a data transmission line interface 1 which includes a modem for linking to the telephone network 101, a man/machine interface 2/7 and, in memory, an application for connection/disconnection to the Internet 100, an application for communication across the Internet 100 and an application for effecting communication across the Internet 100, respectively represented by the functional blocks 8, 11 and 12. All these elements are linked to a central control block 13, in this instance a processor, intended for executing the applications and for controlling the operation of the terminal T_1.

The man/machine interface comprises a microphone 3 linked to an analog/digital converter (ADC) 2, a loudspeaker 5 linked to a digital/analog converter (DAC) 4, a display screen 6 and an input keypad 7. The input keypad 7 comprises telephone keypad conventional alphanumeric keys as well as a specific key for effecting communication across the Internet 100, intended for triggering the execution of the application (12) for effecting communication across the Internet 100.

The line interface 1 enables the terminal T_1 to communicate across the telephone network 101.

The application (8) for connection/-disconnection to the Internet 100 enables the terminal T_1 to connect up to the Internet 100, by telephone connection across the telephone network 101 to its access provider IAP_1, according to a connection procedure, or protocol, and to disconnect from the Internet 100, according to a disconnection procedure.

The application (11) for communication across the Internet 100 enables the terminal T_1 to communicate across the Internet 100 with a corresponding terminal, in real time and bidirectionally, by using Internet 100 communication protocols, in this instance the TCP, UDP, IP and RTP protocols. In the particular example of the description, the application for communication across the Internet 100 consists of a telephony application enabling voice communication between the terminal T_1 and a corresponding terminal across the Internet 100.

Functionally, the block 11 for communication across the Internet 100 comprises

- a module 9 for splitting into data packets and for reassembling data and
- a compression/decompression module 10.

The module 9 is intended, on transmission, for splitting the data to be transmitted into data packets and, on reception, for reassembling the data from data packets received, according to the TCP, UDP, IP and RTP Internet protocols.

The compression/decompression module 10 is intended, on transmission, for compressing the data to be transmitted and, on reception, for decompressing the data received.

Thus, the terminal T_1, on transmission, compresses the data to be transmitted and splits them up into data packets, using the Internet protocols, and, on reception, reassembles the data packets received so as to recover the data sent, and decompresses the latter.

It will be noted here that each data packet contains a destination computer address and an origin computer address on the Internet 100. The expression "computer address" is understood to designate an address on the Internet computer network 100, more commonly referred to as an "IP address" (standing for Internet Protocol). These IP addresses consist of a succession of digits and are used by the Internet 100 to convey the data packets to their recipient and occasionally the return them to their sender. A communication terminal, connected to the Internet 100, has its own IP address on the Internet network 100, usually allocated by the terminal's Internet 100 access provider. The IP addresses of the communication terminals are not generally fixed, but dynamic, stated otherwise are allocated temporarily to the terminals. Stated otherwise, the IP address of a terminal changes fairly often, generally with each new connection of the terminal to the Internet 100.

The application (12) for effecting communication across the Internet 100 enables the terminal T_1 to engage in communication with a corresponding terminal across the Internet 100, according to a procedure for effecting communication which will be more explicitly set out in the description of the process for effecting communication. Functionally, the block 12 for effecting communication comprises in particular a module for receiving an IP address and for transmitting the latter by telephone, and intended for receiving the IP address of the terminal T_1, after connection of the latter to the Internet 100, and for retransmitting it to a corresponding terminal by telephone transmission across the telephone network 101.

The process for effecting communication between the two terminals T_1 and T_2, across the Internet 100, will now be described, with reference to Figure 3.

The terminal T_1 is furnished here with a dual-call signal service. This service, provided by the

operator of the telephone network 101, enables the terminal T_1 to be adviseed, in the course of a telephone communication with a first corresponding party, of the telephone call of a second corresponding party, through the receiving of a call signal, and, as appropriate, to temporarily switch over to the second corresponding party, whilst alerting the first corresponding party.

In order to talk to a user of the terminal T_2 across the Internet 100, a user of the terminal T_1 inputs the telephone call number of the terminal T_2, with the aid of the input keypad 7, and presses the key for effecting communication across the Internet 100.

The steps which will now be described are performed by the terminals T_1 and T_2, here automatically (that is to say without the intervention of their users), by executing their application for effecting communication across the Internet 100. It will be noted from the outset that the two terminals T_1 and T_2 communicate with one another across the telephone network 101 via protocol frames.

The terminal T_1 calls the terminal T_2 across the telephone network 101 (step 20). On receiving this call, the terminal T_2 puts the telephone line off-hook and the two terminals engage in a telephone communication, across the telephone network 101, in the course of which the terminal T_1 asks the terminal T_2 whether it wishes to communicate with it and in real time across the Internet 100 (step 21).

The terminal T_2 then triggers the execution of its application for effecting communication across the Internet 100 and informs the terminal T_1 that it agrees to communicate with it across the Internet 100.

In case of refusal to communicate with the terminal T_1 across the Internet 100, the terminal T_2 will inform the terminal T_1 thereof and the latter will end the procedure for effecting communication across the Internet 100 (step 22).

After having received the agreement of the terminal T_2, the terminal T_1 invites the latter to call it back later, here one minute afterward, across the telephone network 101 (step 23), then interrupts the telephone communication by placing the telephone line back on-hook (step 24).

The calling terminal T_1 then connects up to the Internet 100, by telephone connection to its access provider IAP_1 across the telephone network 101, by executing the application 8 for connection/-disconnection to the Internet 100 (step 25). Upon connection, the terminal T_1 obtains and receives an IP address, which will be referred to as the "address IP_1" in what follows, allocated by the access provider IAP_1. After having obtained its address IP_1, the terminal T_1 remains connected to the Internet 100 and waits for the call from the terminal T_2.

As agreed, the terminal T_2 calls the terminal T_1 across the telephone network 101 one minute after the call from the terminal T_1 to the terminal T_2 (step 26). The terminal T_1 being connected to the Internet 100 by a telephone link with its access provider IAP_1, its telephone line is busy. Nevertheless, it is adviseed of the incoming call of the terminal T_2 by the receiving of a call signal (step 27), sent by the dual-call signal service. After receiving the dual-call signal, the terminal T_1 sends the access provider IAP_1 a specific alerting frame, via which the terminal T_1 asks the access provider IAP_1 to wait without interrupting their telephone communication, for a specified duration, here for a few minutes. The terminal T_1 then temporarily switches over to the calling terminal T_2 so as to establish a telephone communication therewith across the telephone network 101, in the course of which the terminal T_1 transmits its address IP_1 to the terminal T_2 (step 28). It will be stressed that, during the telephone communication between the terminal T_1 and the terminal T_2, the terminal T_1 puts its access provider IAP_1 on standby and therefore remains

connected to the Internet 100. The terminal T_1 then again switches over to the Internet 100 and interrupts the telephone communication with the terminal T_2.

After having obtained the address IP_1 of the terminal T_1, the terminal T_2 connects up in turn to the Internet 100, by telephone connection to its access provider IAP_2, across the telephone network 101, by executing the application for connection/disconnection to the Internet 100 (step 29). Upon connection, it obtains an IP address, which will be referred to as "address IP_2" in what follows, allocated by the access provider IAP_2.

After connection to the Internet 100, the terminal T_2 engages in communication in real time, across the Internet 100, with the terminal T_1 by sending it first data packets containing the address IP_2 of the terminal T_2 (step 30). The terminal T_2 thus transmits its address IP_2 to the terminal T_1 across the Internet 100. The two terminals T_1 and T_2 henceforth each know the IP address of the other and can therefore communicate with one another in real time across the Internet 100, by exchanging data packets. The terminals T_1 and T_2 then each transmit a signal, here a sound signal, to advise their users that they can talk to one another across the Internet 100, as with an ordinary telephone.

The communication between the two terminals T_1 and T_2 (step 31) unfolds in a known manner. On transmission, the voice is input with the aid of the microphone 3 and then digitized (2) into voice data which are compressed (10) and thereafter placed into packets (9) before being sent to the Internet 100 which conveys the packets to the recipient. On reception, the data packets received are reassembled (9) into voice data which are decompressed (10) and then converted into analog signals (4) transmitted by the loudspeaker 5.

If, in step 26, the terminal T_2 calls the terminal T_1, while the latter is connecting up to the

Internet 100 and has not yet obtained an IP address, the terminal T_1 temporarily switches over to the terminal T_2 while alerting the access provider IAP_1, and asks the terminal T_2 to call it back later.

If the terminal T_1 does not succeed in connecting up to the Internet 100 and hence in obtaining an IP address, on receiving the call of the terminal T_2 (step 26), it puts the telephone line off-hook and informs the terminal T_2 of its failure to connect to the Internet 100.

A second embodiment of the process for effecting communication will now be described, with reference to Figure 4. For the sake of clarity, only the steps of this second embodiment which differ from those of the first embodiment described above will now be explained.

Under the control of a user, the terminal T_1 calls the terminal T_2 across the telephone network (step 40) and asks it whether it wishes to communicate with it across the Internet 100 (step 41).

As appropriate, the terminal T_2 informs the terminal T_1 that it agrees to communicate with it across the Internet 100. The terminal T_1 then invites the terminal T_2 to call it back later, here one minute afterward, across the telephone network 101 (step 43), then interrupts the telephone communication by putting the telephone line back on-hook (step 44).

In case of refusal of the terminal T_2 to communicate across the Internet 100 with the terminal T_1, the latter would end the procedure for effecting communication across the Internet 100 (step 42).

The calling terminal T_1 thereafter connects up to the Internet 100 (step 45) and, via a specific frame of the Internet 100 connection protocol, addresses a request to its access provider IAP_1 so as to obtain the same computer address for two successive connections, the current one and the following one. On connection, the terminal T_1 obtains and receives an IP address ("address IP_1"). It then disconnects from the Internet

100 (step 46), interrupting the telephone communication with its access provider IAP_1 consequently freeing its telephone line, and waits for the call from the terminal T_2.

As agreed, the terminal T_2 calls the terminal T_1 across the telephone network 101 one minute after the call from the terminal T_1 to the terminal T_2 (step 47). On receiving this call, the terminal T_1 puts the telephone line off-hook and the two terminals T_1 and T_2 establish a telephone communication, across the telephone network 101, in the course of which the terminal T_1 transmits its address IP_1 to the terminal T_2. The terminal T_1 then interrupts the telephone communication by putting the line back on-hook.

The two terminals T_1 and T_2 then connect up to the Internet 100, by telephone connection to their respective access providers IAP_1 and IAP_2 (steps 49 and 50). The terminal T_1 obtains and receives, as agreed, the same address IP_1 as at its previous connection, and the terminal T_2 obtains and receives an IP address ("address IP_2").

After connection to the Internet 100, the terminal T_2 engages in communication in real time, across the Internet 100, with the terminal T_1 by sending the latter first data packets containing the address IP_2 of the terminal T_2. The terminal T_2 thus transmits its address IP_2 to the terminal T_1 across the Internet 100 (step 51). Each terminal T_1 and T_2 knowing the IP address of the other terminal, they communicate with one another, in real time, across the Internet 100, by exchanging data packets (step 52).

If, in step 47, the terminal T_2 calls the terminal T_1 while the latter is still communicating with the access provider IAP_1, the terminal T_2 obtains a busy signal and then decides to call back later.

If the terminal T_1 does not succeed in connecting up to the Internet 100 and hence in obtaining an IP address, on receiving the call from the terminal T_2 (step 26), it puts the telephone line off-

hook and informs the terminal T_2 of its failure to connect to the Internet 100.

In a variant embodiment, the calling terminal T_1 does not call the terminal T_2 across the telephone network 101 before its first connection to the Internet 100 to obtain the address IP_1 (step 45). After having obtained its address IP_1, the terminal T_1 disconnects from the Internet 100 and calls the terminal T_2 across the telephone network 101. After establishment of the telephone communication between the two terminals T_1 and T_2, the terminal T_1 asks the terminal T_2 if it wishes to communicate with it in real time across the Internet 100 and, as appropriate, transmits its address IP_1 to it across the telephone network 101. The two terminals T_1 and T_2 then interrupt their telephone communication and connect up to the Internet 100, by telephone connection to their access provider IAP_1 and IAP_2. As agreed at the first connection, the terminal T_1 obtains and receives the same address IP_1. The terminal T_2 obtains and receives an address IP_2 which it transmits to the terminal T_1 across the Internet 100, thereby engaging in communication across the Internet 100.

It would also be possible to envisage the terminal T_1 calling the terminal T_2 across the telephone network 101 before its first connection to the Internet 100 so as to obtain the address IP_1 (step 45), solely in order to ask it whether it wishes to communicate with it across the Internet 100 and, after having obtained this address IP_1, disconnecting from the Internet 100 and again calling the telephone T_2 across the telephone network 101 so as to transmit its address IP_1 to it.

The terminal T_1 could also address a request to its access provider IAP_1 so as to obtain the same IP address for a specified duration. In this case, the access provider IAP_1 would allocate the terminal T_1 the same address IP_1 for a plurality of successive connections, in so far as they occur within the predetermined time span. As a variant, the access

provider could allocate the terminal T_1 the same IP address, implicitly (that is to say without express request by the terminal T_1), for several successive connections of the terminal T_1, in so far as these connections occur within a predetermined time span.

In the foregoing description, all the steps of the process for effecting communication are executed automatically by the terminals. There could also be provision for at least some of these steps to be executed by operators, users of the terminals.

In the particular example of the description, the communication established across the Internet 100 is a voice communication. It could of course pertain to any other type of communication, especially a telefax communication.

Instead of the STN telephone network 101, it would be possible to envisage any other type of telephone network, for example a wire, cellular or satellite network.

Finally, the process for effecting communication of the invention could also be used to effect communication between more than two terminals.

CLAIMS

1. A process for effecting communication between at least two communication terminals (T_1, T_2) across a computer network (100), in which, the two terminals (T_1, T_2) being linked to a telephone network (101),
- the first of the two terminals (T_1) connects up (25) to the computer network (100) and obtains a computer address which it transmits to the second terminal (T_2) across the telephone network (101), and
- the second terminal (T_2) connects up (29) to the computer network (100) and obtains a computer address which it transmits to the first terminal (T_1) across the computer network (100),

process characterized in that
- before connecting up to the computer network (100), the first terminal (T_1) calls (20) the second terminal (T_2) across the telephone network (101) and invites it (21) to call it back later,
- as agreed, the second terminal (T_2) calls the first terminal (T_1) later (26) and the latter then transmits (28) its computer address to it, across the telephone network (101).

2. The process as claimed in claim 1, in which, after having obtained its computer address, the first terminal (T_1) remains connected to the computer network (100), it is adviseed of the call of the second terminal (T_2) across the telephone network (101) by a call signal (27) and then switches (28) temporarily over to the second terminal (T_2) so as to transmit its computer address to it across the telephone network (101).

3. A process for effecting communication between at least two communication terminals (T_1, T_2) across a computer network (100), in which, the two terminals (T_1, T_2) being linked to a telephone network (101),
- the first of the two terminals (T_1) connects up (45) to the computer network (100) and obtains a computer

address which it transmits to the second terminal (T_2) across the telephone network (101), and

- the second terminal (T_2) connects up (50) to the computer network (100) and obtains a computer address which it transmits to the first terminal (T_1) across the computer network (100),

process characterized in that, after having obtained (45) its computer address, the first terminal (T_1) disconnects (46) from the computer network (100), so as to transmit (48) its computer address to the second terminal (T_2) across the telephone network (101), then reconnects (49) to the computer network (100) and obtains the same computer address as at the previous connection (45).

4. The process as claimed in claim 3, in which, after having disconnected from the computer network (100), the first terminal (T_1) calls the second terminal (T_2) across the telephone network (101) so as to transmit its computer address to it.

5. The process as claimed in any one of claims 3 and 4, in which the first terminal (T_1) connects up to the computer network (100) by way of an access provider (IAP_1) to which it addresses a request (45) so as to obtain the same computer address for two successive connections.

6. The process as claimed in any one of claims 3 to 5, in which the first terminal (T_1) connects up to the computer network (100) by way of an access provider (IAP_1) which allocates it the same computer address for a plurality of successive connections in so far as they occur within a predetermined time span.

7. The process as claimed in any one of claims 1 to 6, in which the first terminal (T_1) calls the second terminal (T_2) across the telephone network (101) so as to ask it if it wishes to communicate with it across the computer network (100).

8. The process as claimed in any one of claims 1 to 7, in which, after effecting communication between the two terminals (T_1, T_2) across the computer network (100),

the terminals (T_1, T_2) each activate a signal so as to advise their users that communication has been effected between the two terminals (T_1, T_2).

ABSTRACT

ECONOMIC PROCESS FOR EFFECTING COMMUNICATION BETWEEN TWO COMMUNICATION TERMINALS ACROSS THE INTERNET AND ASSOCIATED COMMUNICATION TERMINAL

Process for effecting communication between at least two communication terminals (T_1, T_2) across the Internet (100), in which, the two terminals (T_1, T_2) being linked to a telephone network (101),

- the first of the two terminals (T_1) calls the second terminal (T_2) across the telephone network (101) and invites it to call it back later, then it connects up to the computer network (100) and obtains a computer address;
- as agreed, the second terminal (T_2) calls the first terminal (T_1) later and the latter then transmits its computer address to it, across the telephone network (101) and
- the second terminal (T_2) connects up to the computer network (100) and obtains a computer address which it transmits to the first terminal (T_1) across the computer network (100).

Figure 1

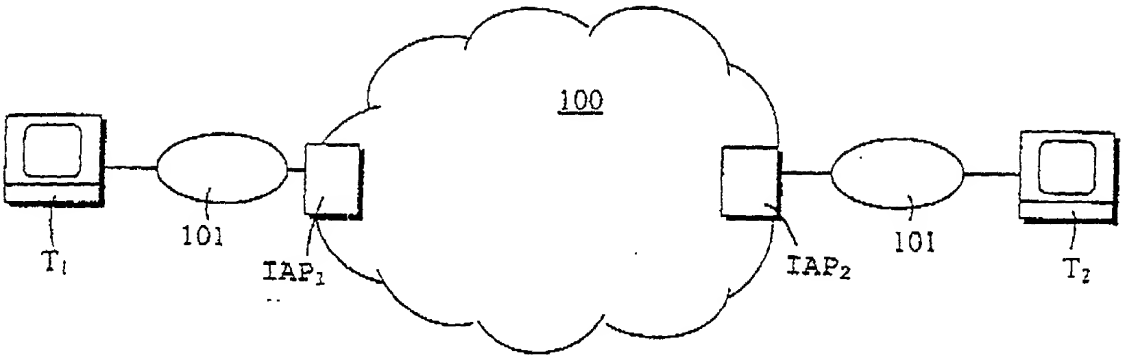

Figure 1

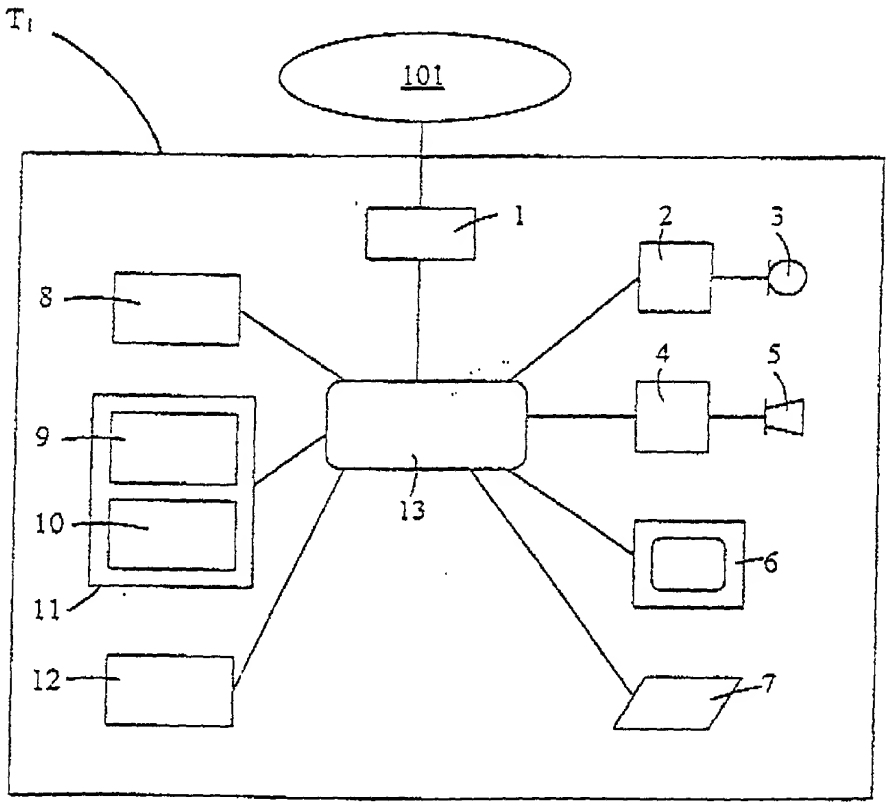

Figure 2

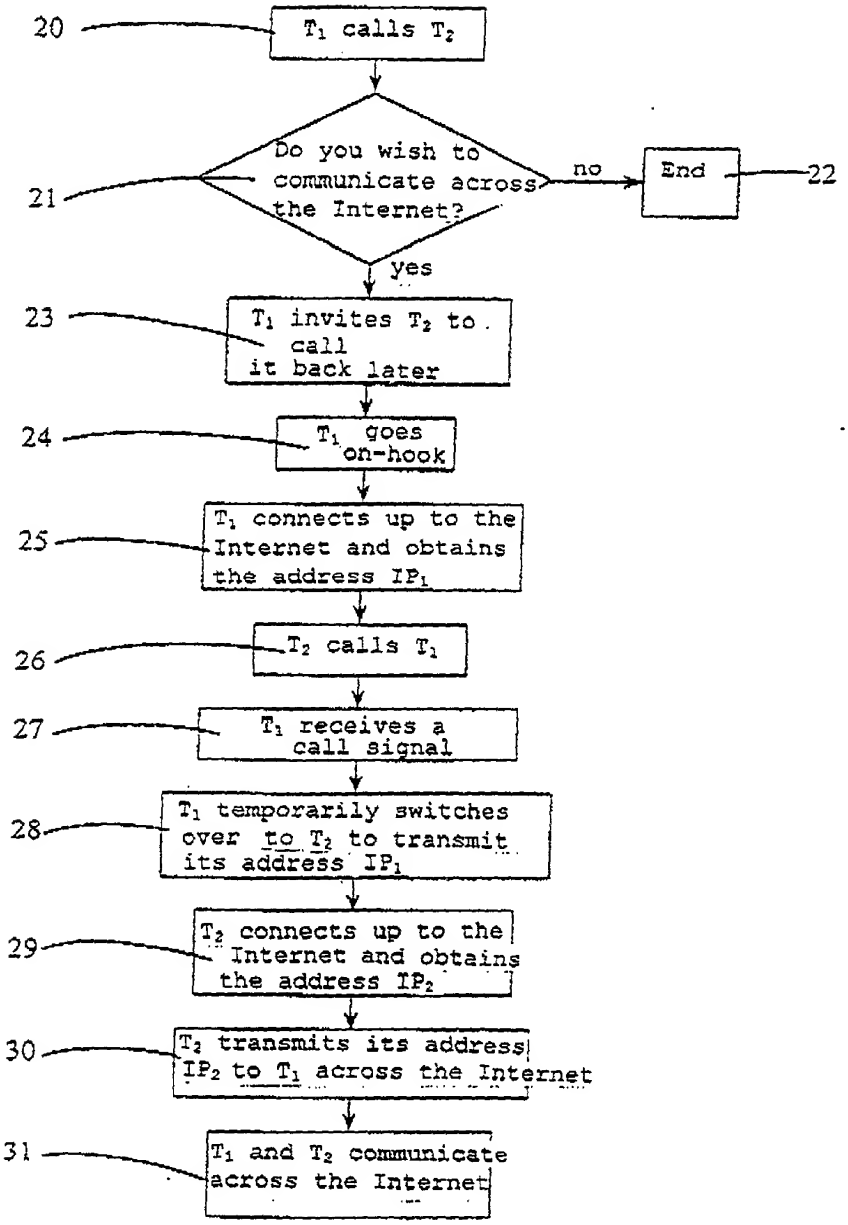
20
T_1 calls T_2
Do you wish to communicate across the Internet?
21
no
End
22
yes
23
T_1 invites T_2 to call it back later
24
T_1 goes on-hook
25
T_1 connects up to the Internet and obtains the address IP_1
26
T_2 calls T_1
27
T_1 receives a call signal
28
T_1 temporarily switches over to T_2 to transmit its address IP_1
29
T_2 connects up to the Internet and obtains the address IP_2
30
T_2 transmits its address IP_2 to T_1 across the Internet
31
T_1 and T_2 communicate across the Internet

Figure 3

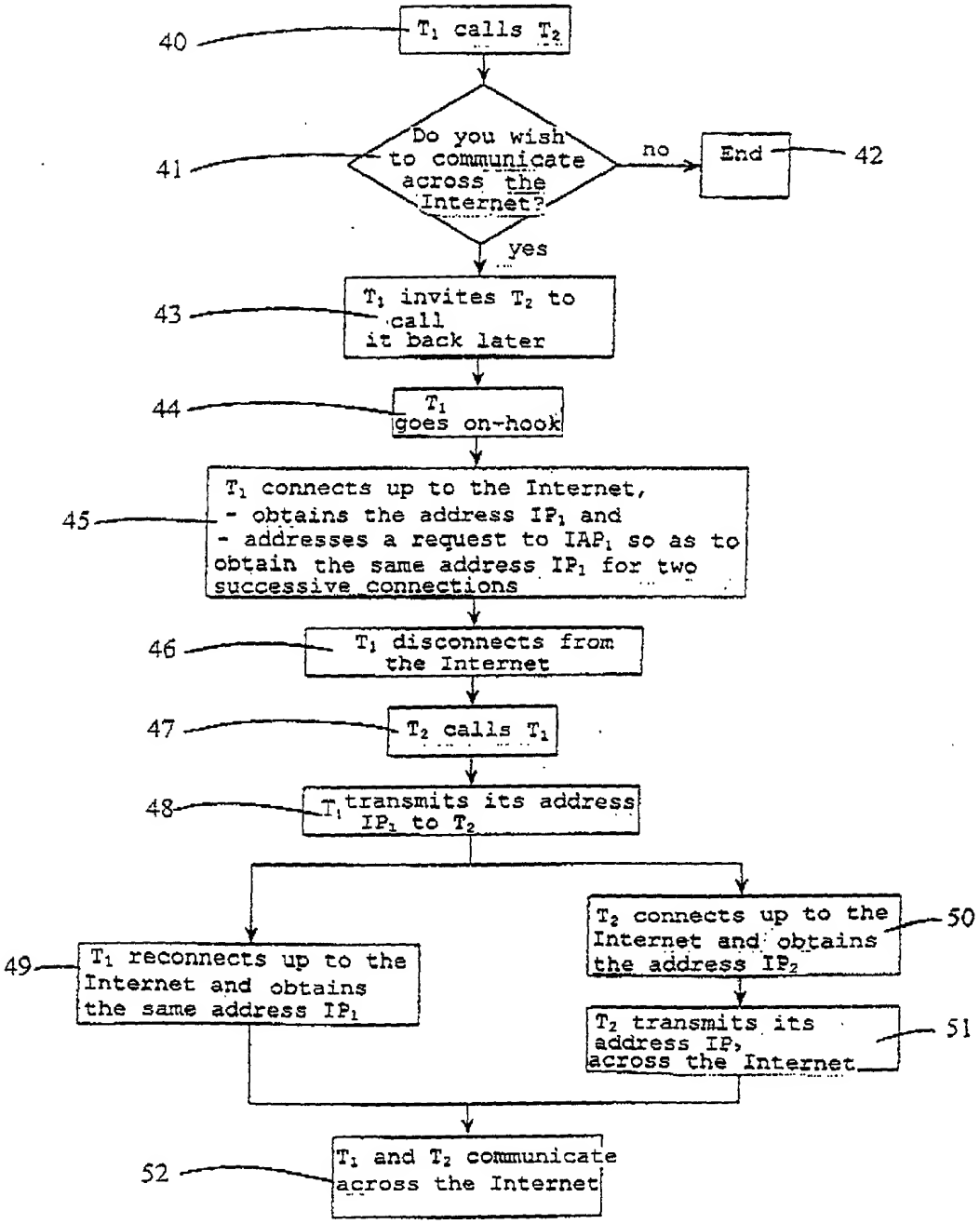
40
T_1 calls T_2
41
Do you wish to communicate across the Internet?
no
End
42
yes
43
T_1 invites T_2 to call it back later
44
T_1 goes on-hook
45
T_1 connects up to the Internet,
- obtains the address IP_1 and
- addresses a request to IAP_1 so as to obtain the same address IP_1 for two successive connections
46
T_1 disconnects from the Internet
47
T_2 calls T_1
48
T_1 transmits its address IP_1 to T_2
49
T_1 reconnects up to the Internet and obtains the same address IP_1
50
T_2 connects up to the Internet and obtains the address IP_2
51
T_2 transmits its address IP, across the Internet
52
T_1 and T_2 communicate across the Internet

Figure 4

XA-9467
PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

MENU Michel

Intl. Appln. No.: PCT/FR99/02655

Intl. Filing Date: 29 October 1999

For: ECONOMIC PROCESS FOR EFFECTING COMMUNICATION BETWEEN TWO COMMUNICATION TERINALS ACROSS THE INTERNET AND ASSOCIATED COMMUNICATION TERMINAL

* * *

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April 30, 2001

DECLARATION AND POWER OF ATTORNEY

As a below-named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe that I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled ECONOMIC PROCESS FOR EFFECTING COMMUNICATION BETWEEN TWO COMMUNICATION TERMINALS ACROSS THE INTERNET AND ASSOCIATED COMMUNICATION TERMINAL, the specification of which

[X] is attached hereto.

[ ] was filed on _____, as United States Application No. _____ or PCT International Application No. _____, and was amended on _____.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, § 119 (a)-(d) of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Application No.	Country	Filing Date	Priority Claimed Yes	Priority Claimed No
98 13635	FRANCE	OCTOBER 30, 1998	X	
PCT/FR99/02655	PCT	OCTOBER 29, 1999	X	

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below:

Application No.	Filing Date

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

Application No.	Filing Date

I hereby appoint Nelson H. Shapiro, Reg. No. 17,095, Mitchell W. Shapiro, Reg. No. 31,568, James T. Wilson, Reg. No. 41,439, and the other practitioners associated with the Customer Number provided below to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith, and direct that all correspondence be addressed to that Customer Number:

Customer Number 20,230

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under § 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or first inventor: Michel MENU

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(2) Full name of second joint inventor, if any: _____

Date: _____ Signature: _____

Citizenship: _____ Residence: _____

Post Office Address: _____